NON-PUBLIC?: N
ACCESSION #: 8801050398

LICENSEE EVENT REPORT (LER)

FACILITY NAME: Braidwood, Unit 1 PAGE: 1 of 3

DOCKET NUMBER: 05000456

TITLE: Manual Reactor Trip Due to Plugged Condensate Pump Suction Strainers
EVENT DATE: 12/06/87 LER #: 87-060-00 REPORT DATE: 12/24/87

OPERATING MODE: 1 POWER LEVEL: 089

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Larry Anderson, Technical Staff Engineer
TELEPHONE #: 815-458-2801 Ext. 2475

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT: At 1953 on December 6, 1987, Unit 1 was manually tripped in response to rapidly decreasing steam generator levels. Condensate pump suction strainer differential pressure high and feedwater pump net positive suction head low alarms were received immediately prior to the trip. Additionally, station personnel reported condensate system piping shaking.

The root cause of the event is attributed to blockage of the condenste/condensate booster pump suction strainers.

Corrective action included a walkdown of the condensate system to look for piping/hanger damage. Prior to reactor startup, all four condensate pump suction strainers were manually cleaned, and all four condensate booster pump strainers were backwashed. The condenser hot well will be cleaned and inspected during the next outage.

There have been no previous occurrences.

(End of Abstract)

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: Braidwood 1; Event Date: December 6, 1987; Event Time: 1953
MODE: 1 - Power Operation; Rx Power: 89%;
RCS (AB) Temperature/Pressure: NOT/NOP

B. DESCRIPTION OF EVENT:

There were no systems or components inoperable at the beginning of the event that contributed to the event.

On December 6, 1987, Unit 1 was in operation at 89% reactor power and 1040 megawatts electrical (MWE). The A, B, and D condensate/condensate booster (CD/CB) (SD) pumps were in operation, while the C pump was shutdown for suction strainer backwashing. Braidwood Operating Surveillance, 1BwOS 3.1.1-20, Unit One Train A Solid State Protection System Bi-Monthly Surveillance, was in progress, which rendered the 1A Auxiliary Feedwater Pump (AF) (BA), motor driven, incapable of auto starting. At approximately 1953, the condensate pump suction strainer differential pressure high alarm, and the feedwater pump net positive suction head low alarm were received. At this time, the Unit One Nuclear Station Operator (NSO) initiated a load reduction to 50% power at a rate of 50 MWE per minute. Steam Generator (S/G) levels were falling rapidly. The NSO was instructed to manually trip the reactor when the 1A S/G level approached the reactor trip setpoint of 40.8%. The reactor was manually tripped at 1953. At 1954, the 1B AF pump, diesel driven, auto started, and Braidwood Emergency Procedure, 1BwEP-0, Reactor Trip or Safety Injection, was entered. The 1A AF pump was manually started at 1955. Pressurizer (RY) (AB) level decreased during the following 5 minutes, and upon reaching the 17% setpoint the RY heaters de-energized and letdown flow isolated automatically. At 2005, the 1B Centrifugal Charging Pump (CV) (CB) was started and the 1B and 1C Feedwater (FW) (SJ) pumps were tripped. At 2008, the steam dumps were switched to the steam pressure mode, and at 2010, the 1B AF pump was shutdown. Letdown and RY heaters were restored when RY level reached 17%, and the 1B CV pump was shutdown at 2022. RCS pressure and temperature were then restored to normal. After the event it was reported that shaking of the CD/CB piping system had been observed.

The appropriate NRC notification via the ENS phone system was made at 2058 on December 6, 1987, pursuant to 10CFR50.72(b)(2)(ii).

This event is being reported pursuant to 10CFR50.73(a)(2)(iv) - Any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature, including the reactor protection system.

C. CAUSE OF EVENT:

Corrosion products, scale, in significant quantities, and some weld slag, were found while cleaning the suction strainers after the event. A large piece of reinforced visqueen plastic, approximately 2 1/2 feet by 1 foot, was also found in the 1B CD/CB pump strainer. The apparent root cause is that the visqueen acted as a trap and broke loose after the CD/CB pump swap, sending crud and the visqueen into the suction strainers.

D. SAFETY ANALYSIS:

The systems and the operators were able to safely respond to the event. Although the 1A AF pump did not auto start because 1BwOS 3.1.1-20 was in progress at the time of the event, it was manually started by the operators. Since the reactor was manually tripped and AF water was supplied, this event resulted in no safety consequences.

Under worse case conditions, no auxiliary feedwater would have been available. In this event, operators would have been directed to cooldown the plant per procedure 1BwFR-H.1, Response to Loss Of Secondary Heat Sink.

E. CORRECTIVE ACTIONS:

Due to the reported shaking of the CD/CB system piping, a walkdown of the affected lines was performed by Technical Staff and Operating Staff personnel. No visible piping or support problems were observed after the event.

Prior to reactor start-up, all four CD pump suction strainers were cleaned manually, and all four CB pump strainers were backwashed. The condenser hotwell will be cleaned and inspected during the next scheduled outage. This will be tracked by item number 456-200-87-41101.

F. PREVIOUS OCCURRENCES:

There have been no previous manual reactor trips due to CB/CB pump suction strainers clogging.

G. COMPONENT FAILURE DATA:

None

Commonwealth Edison
Braidwood Nuclear Power Station
Route #1, Box 84
Braceville, Illinois 60407
Telephone 815/458-2801

EEF/87-1999

December 30, 1987

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Dear Sir:

The enclosed Licensee Event Report from Braidwood Generating Station is being transmitted to you in accordance with the requirements of 10CFR50.73(a)(2)(iv) which requires a 30 day written report.

This report is number 87-060-00; Docket No. 50-456.

Very truly yours,
/s/ E. E. Fitzpatrick 12/31/87
E. E. Fitzpatrick
Station Manager
Braidwood Nuclear Station

EEF/PGH/mje
(6403z)

Enclosure: Licensee Event Report No. 87-060-00
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